

CLAIM AMENDMENTS

Claim Amendment Summary

Claims pending

- At time of the Action: Claims 1-52.
- After this Response: Claims 1-35, 37-40, and 42-52.

Canceled or Withdrawn claims: 36 and 41.

Amended claims: 14.

New claims: none.

Claims:

AI 1. (ORIGINAL) A method for measuring bandwidth between two entities on a network, the method comprising:

receiving at least one first non-compressible packet having measurable characteristics;

calculating bandwidth based upon, at least partially, characteristics of the first non-compressible packet.

2. (ORIGINAL) A method as recited in claim 1, wherein the first non-compressible packet is approximately fragmentation-avoidance size.

1 3. (ORIGINAL) A method as recited in claim 1, wherein the first non-
2 compressible packet is highly entropic.

3
4 AI 4. (ORIGINAL) A method as recited in claim 1, wherein the first non-
5 compressible packet is formatted for TCP.

6
7 5. (ORIGINAL) A method as recited in claim 1, wherein the first non-
8 compressible packet is formatted for UDP.

9
10 6. (ORIGINAL) A method as recited in claim 1 further comprising:
11 after receiving the first packet, receiving a second non-compressible packet
12 having measurable characteristics including a packet size (PS) and a time of
13 receipt (t_3);

14 wherein the measurable characteristics of the first packet include a packet
15 size, which is equivalent to the packet size of the second packet, and a time of
16 receipt (t_1);

17 wherein bandwidth (bw) is calculated, during the calculating, by this
18 formula:

$$\text{bw} = \frac{\text{PS}}{t_3 - t_1}$$

1 7. **(ORIGINAL)** A method as recited in claim 1 further comprising
2 querying a modem of an entity about a bandwidth setting of the modem when
3 result of calculating bandwidth is outside a given range of believability.

4 AI

5 8. **(ORIGINAL)** A method as recited in claim 1 further comprising
6 storing result of calculating bandwidth within a list of recent bandwidth
7 measurements.

8
9 9. **(ORIGINAL)** A method as recited in claim 1 further comprising:
10 storing result of calculating bandwidth within a list of recent bandwidth
11 measurements;
12 finding a statistical derivation from such list, such derivation representing a
13 most likely actual bandwidth between the two entities.

14
15 10. **(ORIGINAL)** A method as recited in claim 1 further comprising:
16 storing result of calculating bandwidth within a list of recent bandwidth
17 measurements;
18 finding a median of such list, such median representing a most likely actual
19 bandwidth between the two entities.

20
21 11. **(ORIGINAL)** A program module having computer-executable
22 instructions that, when executed within a computing operating environment at an
23 application layer, performs the method as recited in claim 1.
24
25

12. (ORIGINAL) A computer-readable medium having computer-executable instructions that, when executed by a computer, performs the method as recited in claim 1.

AI
13. (ORIGINAL) A method for measuring bandwidth between two entities on a network, the method comprising:

receiving a first non-compressible packet;

receiving a second non-compressible packet;

calculating bandwidth based upon the first and second non-compressible packets.

14. (PRESENTLY AMENDED) A method as recited in claim 13, wherein bandwidth (bw) is calculated, during the calculating, by this formula:

$$bw = \frac{PS}{t_3 - t_1}$$

where

- PS is packet size of the first and second non-compressible packet;
- t3 is a time of receipt of the second packet;
- t1 is a time of receipt of the first packet.

15. (ORIGINAL) A method as recited in claim 13, wherein the first and second non-compressible packets are approximately fragmentation-avoidance size.

1 16. (ORIGINAL) A method as recited in claim 13, wherein the first and
2 second non-compressible packets are highly entropic.

3 AI
4 17. (ORIGINAL) A method as recited in claim 13, wherein the first and
5 second non-compressible packets are formatted for TCP.

6
7 18. (ORIGINAL) A method as recited in claim 13, wherein the first and
8 second non-compressible packets are formatted for UDP.

9
10 19. (ORIGINAL) A method for measuring bandwidth between two
11 entities on a network, the method comprising:

12 sending at least one first non-compressible packet;

13 receiving a bandwidth calculation based upon, at least partially,
14 measurements related to the first non-compressible packet.

15
16 20. (ORIGINAL) A method as recited in claim 19, wherein the first non-
17 compressible packet is approximately fragmentation-avoidance size.

18
19 21. (ORIGINAL) A method as recited in claim 19, wherein the first non-
20 compressible packet is highly entropic.

21
22 22. (ORIGINAL) A method as recited in claim 19, wherein the first non-
23 compressible packet is formatted for TCP.
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1 23. (ORIGINAL) A method as recited in claim 19, wherein the first non-
2 compressible packet is formatted for UDP.

3 A1
4 24. (ORIGINAL) A method as recited in claim 19 further comprising
5 sending a second non-compressible packet immediately after sending the first
6 packet and before receiving a bandwidth calculation, wherein the first and second
7 packets are equivalent in size.

8
9 25. (ORIGINAL) A method as recited in claim 19, after the receiving,
10 further comprising:

11 selecting a file formatted for a given bandwidth that is equal to or less than
12 the bandwidth calculation;

13 sending such file.

14
15 26. (ORIGINAL) A method as recited in claim 19, after the receiving,
16 further comprising:

17 selecting a subfile formatted for a given bandwidth that is equal to or less
18 than the bandwidth calculation;

19 sending such subfile.

20
21 27. (ORIGINAL) A method as recited in claim 19, before the sending,
22 further comprising selecting the first non-compressible packet from a set of
23 differing non-compressible packets.

1 28. (ORIGINAL) A method as recited in claim 19, before the sending,
2 further comprising generating the first non-compressible packet.

3 AI
4 29. (ORIGINAL) A computer-readable medium having computer-
5 executable instructions that, when executed by a computer, performs the method
6 as recited in claim 19.

7
8 30. (ORIGINAL) A method for measuring bandwidth between two
9 entities on a network, the method comprising:

10 sending a first non-compressible packet;

11 sending a second non-compressible packet immediately after the sending of
12 the first packet.

13
14 31. (ORIGINAL) A method as recited in claim 30 further comprising
15 receiving a bandwidth calculation based upon measurements related to the first
16 and second non-compressible packets.

17
18 32. (ORIGINAL) A method as recited in claim 30, wherein the first and
19 second non-compressible packets are approximately fragmentation-avoidance size.

1 33. (ORIGINAL) A method as recited in claim 30, wherein the first and
2 second non-compressible packets are highly entropic.

3 AI
4 34. (ORIGINAL) A method as recited in claim 30, wherein the first and
5 second non-compressible packets are formatted for TCP.

6
7 35. (ORIGINAL) A method as recited in claim 30, wherein the first and
8 second non-compressible packets are formatted for UDP.

9
10 ✓36. (CANCELED)

11
12 37. (ORIGINAL) A method of approximating a bandwidth between two
13 entities on a network, the method comprising:

14 generating a list of entries, each entry containing a recent bandwidth
15 measurement;

16 each measurement being based upon a Packet-Pair bandwidth calculation of
17 different pairs of packets.

18
19 38. (ORIGINAL) A method as recited in claim 37 further comprising
20 replacing a measurement in an entry with a most recently calculated measurement.

21
22 39. (ORIGINAL) A method as recited in claim 37, wherein the packets,
23 which are the basis for the Packet-Pair bandwidth calculation, are non-
24 compressible.
25

1 40. (ORIGINAL) A method as recited in claim 37, wherein the packets,
2 which are the basis for the Packet-Pair bandwidth calculation, are highly entropic.

3
4 ✓ 41. (CANCELED)

5 AI
6 42. (ORIGINAL) A computer-readable medium having stored thereon a
7 data structure, comprising:

8 a list of entries, each entry being a recent bandwidth measurements;
9 each entry being based upon a Packet-Pair bandwidth calculation of
10 different pairs of packets.

11
12 43. (ORIGINAL) A computer-readable medium having computer-
13 executable instructions that, when executed by a computer, perform a method to
14 measure bandwidth between two entities on a network, the method comprising:

15 receiving a first non-compressible packet;
16 receiving a second non-compressible packet;
17 calculating bandwidth based upon the first and second non-compressible
18 packets.

19
20 44. (ORIGINAL) A computer-readable medium having computer-
21 executable instructions that, when executed by a computer, perform a method to
22 measure bandwidth between two entities on a network, the method comprising:

23 sending a first non-compressible packet;
24 sending a second non-compressible packet immediately following the
25 sending of the first packet.

1
2 **45. (ORIGINAL)** A computer-readable medium having computer-
3 executable instructions that, when executed by a computer, perform a method to
4 approximate a bandwidth between two entities on a network, the method
5 comprising:

6 generating a list of entries, each entry containing a recent bandwidth
7 measurement;

8 each measurement being based upon a Packet-Pair bandwidth calculation of
9 different pairs of packets.
10 *AI*

11 **46. (ORIGINAL)** A modulated data signal having data fields encoded
12 thereon transmitted over a communications channel, comprising:

13 a first packet containing non-compressible data;

14 a second packet following the first packet, the second packet containing
15 non-compressible data.

16
17 **47. (ORIGINAL)** The modulated data signals as recited in claim 46,
18 wherein the first and second packets are approximately fragmentation-avoidance
19 size.
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1 48. (ORIGINAL) The modulated data signals as recited in claim 46,
2 wherein the first and second packets are highly entropic.

3
4 49. (ORIGINAL) The modulated data signals as recited in claim 46,
5 wherein the first and second packets are formatted for TCP.

6
7 50. (ORIGINAL) The modulated data signals as recited in claim 46,
8 wherein the first and second packets are formatted for UDP.

9 AI
10 51. (ORIGINAL) An apparatus comprising:

11 a processor;

12 a bandwidth measurer executable on the processor to:

13 receive a first non-compressible packet having measurable
14 characteristics;

15 receive a second non-compressible packet having measurable
16 characteristics;

17 calculate bandwidth based upon characteristics of the first and
18 second non-compressible packets.

19
20 52. (ORIGINAL) An apparatus comprising:

21 a processor;

22 a bandwidth measurer executable on the processor to:

23 sending a first non-compressible packet;

24 sending a second non-compressible packet immediately following
25 the sending of the first packet.